

Tao Ye

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EDUCATION

- 2014-2018 (Expected) **The George Washington University**, Washington D.C., USA
- Ph.D. in Environmental Engineering
 - Dissertation title: Development of sustainable supported Pd-based catalysts for water decontamination
 - Advisor: Danmeng Shuai
- 2010-2013 **Tongji University**, Shanghai, P. R. China
- M.E. in Municipal Engineering
 - Thesis title: Formation of iodinated disinfection by-products during pre-oxidation of iodide-containing waters with potassium permanganate and chlorine dioxide
 - Advisor: Bin Xu
- 2006-2010 **Wuhan University of Science and Technology**, Wuhan, P. R. China
- B.E. in Water Supply and Sewage Engineering

RESEARCH INTERESTS

- **Advanced Intelligent Materials for Water-Energy-Food Nexus**
 - **Catalysis:** Metal catalysts (e.g., palladium, ruthenium) and photocatalysts (e.g., TiO₂ and graphitic carbon nitride)
 - **Membrane Development:** Electrospun nanofibers, and membrane reactors
 - **Multi-functional Materials:** Carbon-based materials, zeolites, and biomaterials
 - **Energy Harvesting:** Solar cells, water splitting, piezocatalysts, and solar steam generation
- **Water and Wastewater Treatment**
 - **Disinfection:** UV, chlorine, chloramines, chlorine dioxide
 - **Disinfection By-Product (DBP) Formation:** Nitrogenous DBPs, iodinated DBPs
 - **Resource Recovery:** Valuable metals and bio fertilizer

PUBLICATIONS

1. Ye, T. [Journey to the Big Easy](#). A Report for Attending 255th ACS Conference in New Orleans. The Capital Chemist. April 2, 2018.
2. Durkin, D. P.;⁺ Ye, T.;⁺ Choi, J.; Livi, K. J.; De Long, H. C.; Trulove, P. C.; Fairbrother, D. H.; Haverhals, L. M.; Shuai, D. Sustainable and Scalable Natural Fiber Welded Palladium-Indium Catalysts for Nitrate Reduction. *Appl. Catal., B.* 2018, 221, 290-301. (+ Equal Contribution)

3. **Ye, T.;** Durkin, D. P.; Banek, N. A.; Wagner, M. J.; Shuai, D. Graphitic Carbon Nitride Supported Ultrafine Pd and Pd-Cu Catalysts: Enhanced Reactivity, Selectivity, and Longevity for Nitrite and Nitrate Hydrogenation. **ACS Appl. Mater. Interfaces.** 2017, 9, 27421-27426.
4. Zhu, W.;[†] **Ye, T.;**[†] Lee, S.-J.; Cui, H.; Miao, S.; Zhou, X.; Shuai, D.; Zhang, L. G. Enhanced Neural Stem Cell Functions in Conductive Annealed Carbon Nanofibrous Scaffolds with Electrical Stimulation. **Nanomed. Nanotech. Biol. Med.** 2017. (+ Equal Contribution, doi.org/10.1016/j.nano.2017.03.018)
5. Jadbabaei, N.; **Ye, T.;** Shuai, D.; Zhang, H. Development of Palladium-Resin Composites for Catalytic Hydrodechlorination of 4-Chlorophenol. **Appl. Catal., B.** 2017, 205, 576-586.
6. Yang, Z.; Sun, Y.-X.; **Ye, T.;** Shi, N.; Tang, F.; Hu, H.-Y. Characterization of Trihalomethane, Haloacetic Acid, and Haloacetonitrile Precursors in a Seawater Reverse Osmosis System. **Sci. Total Environ.** 2017, 576, 391-397.
7. Durkin, D. P.; **Ye, T.;** Larson, E. G.; Haverhals, L. M.; Livi, K. J.; De Long, H. C.; Trulove, P. C.; Fairbrother, D. H.; Shuai, D. Lignocellulose Fiber- and Welded Fiber- Supports for Palladium-Based Catalytic Hydrogenation: A Natural Fiber Welding Application for Water Treatment. **ACS Sustainable Chem. Eng.** 2016, 4, 5511-5522.
8. **Ye, T.;** Durkin, D. P.; Hu, M.; Wang, X.; Banek, N. A.; Wagner, M. J.; Shuai, D. Enhancement of Nitrite Reduction Kinetics on Electrospun Pd-Carbon Nanomaterial Catalysts for Water Purification. **ACS Appl. Mater. Interfaces.** 2016, 8, 17739-17744.
9. Sun, Y.-X.; Yang, Z.; **Ye, T.;** Shi, N.; Tian, Y. Evaluation of the Treatment of Reverse Osmosis Concentrates from Municipal Wastewater Reclamation by Coagulation and Granular Activated Carbon Adsorption. **Environ. Sci. Pollut. Res.** 2016, 23, 13543-13553.
10. Ye, T. [A Journey to the Mile-High City](#). A Report for Attending 249th ACS Conference in Denver. The Capital Chemist. April 20, 2015.
11. **Ye, T.;** Shuai, D.; Tan, D. T. Research Highlights: Under-Recognized Precursors and Sources for Disinfection Byproduct Formation. **Environ. Sci.: Water Res. Technol.** 2015, 1, 405-407.
12. Zhang, T.-Y.; Xu, B.; Hu, C.-Y.; Lin, Y.-L.; Lin, L.; **Ye, T.;** Tian, F.-X. A comparison of Iodinated Trihalomethane Formation from Chlorine, Chlorine Dioxide and Potassium Permanganate Oxidation Processes. **Water Res.** 2015, 68, 394-403.
13. Tian, F.-X.; Xu, B.; Tian, K.-N.; Hu, C.-Y.; Xia, S.-J.; Gao, N.-Y.; **Ye, T.** Formation of Carbonaceous and Nitrogenous Disinfection By-Products during Monochloramination of Oxytetracycline including N-Nitrosodimethylamine. **Desalin. Water Treat.** 2015, 54, 2299-2306.
14. **Ye., T.;** Xu, B.; Wang, Z.; Zhang, T.-Y.; Hu, C.-Y.; Lin, L.; Xia, S.-J.; Gao, N.-Y. Comparison of Iodinated Trihalomethanes Formation during Aqueous Chlro(am)ination of Different Iodinated X-Ray Contrast Media Compounds in the Presence of Natural Organic Matter. **Water Res.** 2014, 66, 390-398.
15. Lin, L.; Xu, B.; Lin, Y.-L.; Hu, C.-Y.; **Ye, T.;** Zhang, T.-Y.; Tian, F.-X. A Comparison of Carbonaceous, Nitrogenous and Iodinated Disinfection By-Products Formation Potential in Different Dissolved Organic Fractions and Their Reduction in Drinking Water Treatment Processes. **Sep. Purif. Technol.** 2014, 133, 82-90.
16. **Ye, T.;** Xu, B.; Lin, Y.-L.; Hu, C.-Y.; Lin, L.; Zhang, T.-Y.; Gao, N.-Y. Formation of Iodinated Disinfection By-Products during Oxidation of Iodide-Containing Waters with Chlorine Dioxide. **Water Res.** 2013, 47,

3006–3014.

17. Bi, X.; Bin X.; Lin, Y.-L.; Hu, C.-Y.; **Ye, T.**; Cao, Q. Monochloramination of Oxytetracycline: Kinetics, Mechanisms, Pathways, and Disinfection By-Products Formation. *Clean-Soil, Air, Water*. 2013, 41, 969–975.
18. **Ye, T.**; Xu, B.; Lin, Y.-L.; Hu, C.-Y.; Xia, S.-J.; Lin, L.; Mwakagenda, S.A.; Gao, N.-Y. Formation of Iodinated Disinfection By-Products during Oxidation of Iodide-Containing Water with Potassium Permanganate. *J. Hazard. Mater.* 2012, 241–242, 348–354.
19. Xu, B.; **Ye, T.**; Li, D.-P.; Hu, C.-Y.; Lin, Y.-L.; Xia, S.-J.; Tian, F.-X.; Gao, N.-Y. Measurement of Dissolved Organic Nitrogen in A Drinking Water Treatment Plant: Size Fraction, Fate, and Relation to Water Quality Parameters. *Sci. Total Environ.* 2011, 409, 1116–1122.
20. Lin, L.; Xu, B.; Qin, C.; **Ye, T.** Composition of NDMA Precursors in Huangpu River and Its Removal Characteristics in Conventional Treatment Processes. *Water & Wastewater Engineering*. 2013, 39, 61–65. (In Chinese)
21. Sun, Z.-H.; Xu, B.; Hu, C.-Y.; Xia, S.-J.; Gao, N.-Y.; **Ye, T.** Impacts of Iodo-Trihalomethanes Formation During Chloramination of Micro-Polluted Raw Water. *China Water & Wastewater*. 2013, 29 (5), 1–4. (In Chinese)
22. Rong, R.; Xu, B.; Lin, L.; Hu, C.-Y.; Xia, S.-J.; Gao, N.-Y.; **Ye, T.**; Li, D.-P. Characterization of Dissolved Organic Nitrogen in Micro-Polluted Huangpu River Water. *China Water & Wastewater*. 2013, 29 (1), 1–5. (In Chinese)
23. Hu, C.-Y.; Wei, J.-X.; **Ye, T.** Research Progress in the Control of Cyndrospermopsin and Anatoxin-A in Drinking Water. *Environmental Pollution and Control*. 2012, 34, 74–79. (In Chinese)
24. Chen, Y.-Y.; Xu, B.; Li, M.; Hu, C.-Y.; **Ye, T.** Investigation of TCNM Formation in Treatment Process of Micro-Polluted Raw Water from Huangpu River. *China Water and Wastewater*. 2012, 28, 31–35. (In Chinese)

HONORS and AWARDS

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| Feb. 2018 | CSW (The Chemical Society of Washington) Spring 2018 Student Travel Award |
| Aug. 2017 | Dewberry Scholarship for 2017 to 2018 academic year, The George Washington University |
| Feb. 2017 | 2016 Graduate Student Award in Environmental Chemistry Division of Environmental Chemistry, American Chemical Society (ACS) |
| Apr. 2015 | Outstanding Master Thesis of 2014 in Shanghai City |
| Mar. 2015 | 2nd place Poster Winners, The George Washington University Research Days 2015 |
| Feb. 2015 | CSW (The Chemical Society of Washington) Spring 2015 Student Travel Award |
| Apr. 2013 | Outstanding Graduate of Shanghai City |
| Dec. 2012 | Yang Qin Scholarship, Tongji University |
| Nov. 2012 | National Scholarship for Master Graduate Student, China |
| Dec. 2011 | Yin Run Scholarship, Tongji University |
| Oct. 2008 | 2nd place, Wuhan University of Science and Technology Scholarship |
| Oct. 2007 | Excellent Student, Wuhan University of Science and Technology |

CONFERENCE

1. **Ye, T.;** Banek, N.A.; Durkin, D.P.; Maocong Hu.; Xianqin Wang.; Wagner, M.J.; Shuai, D. Reduction of Nitrite on Nitrogen-Functionalized Carbon Supported Pd Catalysts. **255rd ACS Spring Meeting**, New Orleans, LA, March 2018. *(Oral)*
2. **Ye, T.;** Durkin, D.P.; Banek, N.A.; Wagner, M.J.; Shuai, D. Graphitic Carbon Nitride Supported Ultrafine Pd and Pd-Cu Catalysts for the Reduction of Waterborne Contaminants. **AEESP, University of Michigan**, Ann Arbor, June 2017. *(Poster)*
3. Durkin, D. P.; Ye, T.; Larson, E.; Choi, J.; Haverhals, L. M.; Livi K. J. T.; De Long H. C.; Trulove, P. C.; Fairbrother, H. D.; Haverhals, L. M.; Shuai, D. Lignocellulose Fiber- and Welded Fiber- Supports for Palladium Based Catalytic Reduction of Nitrate and Nitrite. **253rd ACS Spring Meeting**, San Francisco, CA, April 2017.
4. **Ye, T.;** Durkin, D.P.; Banek, N.A.; Wagner, M.J.; Shuai, D. Reduction of Waterborne Contaminants on Graphitic Carbon Nitride Supported Pd-Based Catalysts. **253rd ACS Spring Meeting**, San Francisco, CA, April 2017. *(Oral)*
5. Durkin, D. P.; Ye, T.; Larson, E.; Haverhals, L. M.; Livi K. J. T.; De Long H. C.; Trulove, P. C.; Fairbrother, H. D.; Shuai, D. Lignocellulose Fiber- and Welded Fiber- Supports for Palladium Based Catalytic Reduction of Nitrate and Nitrite. **251st ACS Spring Meeting**, San Diego, CA, March 2016.
6. **Ye, T.;** Durkin, D.P.; Hu, M.; Wang, X.; Banek, N.A.; Wagner, M.J.; Shuai, D. Fabrication of Sustainable Pd-Carbon Nanofiber Catalysts by Electrospinning for Waterborne Contaminant Hydrogenation. **251st ACS Spring Meeting**, San Diego, CA, March 2016. *(Oral)*
7. **Ye, T.;** Durkin, D.P.; Hu, M.; Wang, X.; Banek, N.A.; Wagner, M.J.; Shuai, D. Electrospinning of Pd-Carbon Nanofibers Catalysts for Waterborne Contaminant Reduction. **AEESP, Yale University**, New Haven, July 2015. *(Poster)*
8. **Ye, T.;** Durkin, D.P.; Hu, M.; Wang, X.; Banek, N.A.; Wagner, M.J.; Shuai, D. One-Pot Electrospinning Fabrication of Pd-Carbon Nanofiber Catalysts for Contaminant hydrogenation. **249th ACS Spring Meeting**, Denver, CO, March 2015. *(Oral)*
9. Xu, B.; Ye, T.; Lin, Y.-L.; Hu, C.-Y.; Xia, S.-J.; Lin, L.; Mwakagenda, S.A.; Gao, N.-Y. Formation of Iodinated Disinfection By-Products During Oxidation of Iodide-Containing Water with Potassium Permanganate. **Gordon Research Conference on Drinking Water Disinfection ByProducts (DBPs)**, Mount Holyoke College, South Hadley, MA, August 2012.

RESEARCH EXPERIENCE

- Civil and Environmental Engineering, The George Washington University, Washington, DC
Research Assistant, Jan. 2014–Present
Advisor: Dr. Danmeng Shuai
 - Developed a facile method for the synthesis of Pd catalysts supported on carbon nanofibers by electrospinning and post-thermal treatment
 - Established different metal deposition methods onto supports, including incipient wetness impregnation, ethylene glycol reduction, and wet impregnation

- Developed different methods for the preparation of carbon nitride nanosheets, nitrogen-doped graphene, nitrogen-functionalized carbon, and electrospun polymer nanofibers
- Resulted in 6 major publications, including 4 (co-)first author and 2 second author papers
- College of Environmental Science and Engineering & State Key Laboratory of Pollution Control and Resource Reuse, Tongji University, Shanghai, China
- Research Assistant**, Jul. 2010–Mar. 2013
- Advisor:** Professor Bin Xu
- Developed methods for the detection of iodinated DBPs, including iodo-THMs and iodo-HAAs, using gas chromatography-electron capture detector (GC-ECD)
- Established the detection methods of iodine reactive species, including iodine and hypiodous acid, using high performance liquid chromatography (HPLC)
- Trained new graduate students in the development of experimental skills
- Resulted in 4 major publications, including 3 first author and 1 second author papers

TEACHING EXPERIENCE

- Substitute lecturer for Environmental Chemistry, George Washington University, Nov.-Dec. 2017
 - Taught about *adsorption* and *kinetics*.
- Attended Graduate Teaching Assistant Certification Course, George Washington University, Fall 2015.
 - Attended teaching seminars.
 - Studied references about teaching philosophy.
 - Gave a supervised talk.
- Grader for Environmental Chemistry (Spring 2016), Principles of Environmental Engineering (Fall 2016 and Fall 2017), Environmental Engineering I: Water Resources and Water Quality (Spring 2016 and Spring 2017)

MENTORING EXPERIENCE

- 2016 Spring Lourdes Puig (high school student), Pd catalytic hydrogenation of nitrite
- 2014 Spring Suty Komsonkeo (undergraduate student), Electrospinning of TiO₂ nanofibers
- 2012 Fall Tian-yang Zhang (Ph.D. candidate), DBP formation and their detection
- 2012 Spring Lin Lin (master student), Chloramination and formation of iodinated DBPs
- 2011 Fall Seleli Andrew Mwakagenda (international master student), Chlor(am)ination

PROFESSIONAL SERVICE

Journal Reviewer

- Frontiers of Environmental Science and Engineering
- Chemical Engineering Journal
- Applied Catalysis B: Environmental
- Sensors and Actuators: Chemical

REFERENCES

Advisor

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Research Collaborator and Committee Member

Howard Fairbrother, Professor
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Committee Member

Rumana Riffat, Professor of Civil and Environmental Engineering
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